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thirty or forty plants is carried home. A pit (*mnipáwa"a; dendi*, ground) 1.5 m. in diameter, but of a lesser depth, is dug in sandy soil, not in gravel, else the steam would escape. Green or dry brush of any description is piled into the hole to the height of a meter above the ground; the uppermost brush must be dry. Stones the size of one's fist are spread over this to a depth of 10 cm. The pile is fired early in the morning, before sunrise. After three or four hours, when the wood is nearly consumed and the stones are red hot, several men (not women, because of danger from the flames) pound on the pile to reduce it level with the surface of the ground (?). Meanwhile women pile the mescal all around the pit to have it conveniently at hand. The pit is apportioned in sectors among several people; when the mescal is put in it, some plants are stood on edge to mark these divisions, the others are then packed indiscriminatingly in between. Long green grass, gathered by the women at the time the fire was started, is first carefully arranged over the plants, and then piled in to a depth of 8 cm. This is then covered with a layer of dirt, 15 cm. deep. It is now 8 or 9 a.m., depending on the quantity of plants. Forty-eight hours later the pit is opened, and grass spread over a convenient space to receive the roasted mescal.

Mescal paint (p. 197) is made from the dried juice which coats the stones. (The plants of the lowest layer have been burned black.) These stones are boiled for a few minutes to remove the sediment: the liquor is poured off and boiled until it thickens; then red paint is stirred in to thicken it further. After boiling longer the paint is reduced to a doughy consistency; the small quantity obtained is rolled into a ball.

The leaves of the roasted mescal may either be chewed at once to obtain the pulp and juice, or they may be mashed and spread in a thin layer on an arrow reed mat to dry. When half dried the fibrous layer is turned over to dry further. While it is still flexible, one edge is folded back and the opposite edge folded over to meet the crease. This preparation (*vie'l*) will keep indefinitely; it is soaked in cold water for an hour to make a sweet drink.

Arrow reed mats (*ditkwiné; dit"*, arrow reed) measure 110 by 80 cm. and 75 by 60 cm., the first dimension being the length of the reeds. Thongs or sinews are twined through the reeds at half a dozen points. Mescal and yucca products, peaches and figs, are spread to dry on such mats.

The leaves of the young plantain (*'ak'i'ei*) are boiled and served as we do cabbage.

The fruit (*katé'e*) of the prickly pear cactus (*dídid*) ripens at the same time as peaches (September). The spiny fruits are broken off

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with tongs, rolled about on the ground with a bundle of brush, and finally rubbed individually with a rag to remove the spines completely. A burden basket full is carried home, the fruits spread and spread out to dry; sometimes the seeds are removed. When desired these are soaked for a few hours and sprouted to make a sweet decoction. 222 252 251

Mormon tea furnishes a drink: the stems are dried in bundles. [172]

Mesquite pods (*ipd'a*) are ripe at the end of September. There is but one way to prepare them. They are gathered when dry and pounded on the grinding slab. The excessively hard seeds are winnowed from the ground pod. The latter is stirred into cold water and allowed to stand for several hours. This drink is stirred before it is imbibed. The pods, being sweet when dry, are often chewed at odd times.

Yucca fruit (*dwaiwa'l*) ripens on the plateau at the end of September. A layer of this is spread on a bed of dry sticks, a meter in diameter. The sticks are fired until the rind of the fruit is burned black, when they are removed with the tongs (*attida'*), and thrown into a pile, on which water is sprinkled. The burned rind is removed, and the seeds, separated from the pulp, prepared by mashing with a mano. The flesh is spread to dry in a layer, 1 cm. thick, on a carpet of Mormon tea sprigs: this sheet is folded for storage. All drying fruits will spoil if exposed to rain. This preparation will keep for half a year. Bits of the sheet are broken off to eat dry, or they may be boiled.

A variety of seeds are gathered: a partial list includes pigweed (*dpuuta'*); goosefoot (*Chenopodium*); *stil''i, gitta, c'ibi* (all three unidentified); juniper berries (*dadjaqa*), and pinon nuts. Sprays of ripe pigweed and goosefoot are allowed to dry for a week; the pods are then rubbed between the palms into a tray basket so that the seeds may be winnowed. These are roasted in the parching tray and ground. Half a kettle of water is brought nearly to a boil and the meal stirred in to make a mush. Pigweed leaves are boiled with salt, sometimes with cornmeal added, and eaten like cabbage.

Stil''i grows only in open glades on the highest part of the plateau. The harvester walks along with a small burden basket in her left hand into which she rapa the seeds with a seed beater (*stil'dirat; dirat*, to beat), emptying the smaller into a larger burden basket on her back from time to time. The seeds are ground, although they are unripe, and stirred into boiling water to make a thin gruel. They are sometimes parched, ground, and eaten dry with bread. 222 252

The seed beater is used only in this connection. It is a flat scoop of wickerwork (Fig. 3). The warps are doubled at their midpoints: at 4/12 285

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285 intervals twigs cross these which are bent down the sides of the scoop
412 to the handle, where all the loose ends are bound together. While the specimen at hand has a thong drawing the tip toward the handle, it is probable that this was intended to hold the beater in shape only until the green twigs dried.

Gayton records that beside mescal, juniper berries were eaten.[1] 222 Pinon nuts, which ripen in October, are parched and ground (without 252 removing the shells); the ground meat is spread on bread. The nuts may also be ground without parching and stirred into boiling water to make a thin gruel.

[285] [412]

Fig. 3 (30.3-1878). A Seed Beater.

263 [222] Wild bees hive in dead logs and the flower stalks of dead mescal. Parties of children go out, picnic fashion, to gather the stalks, split them, and collect the honey. Rock salt (Mi'i) is collected from a cave in the [917] cliff on the south side of the Colorado, where there are stalactites of it. This is ground. Much less than we are accustomed to is used.

Hunting

224 Hunting is a man's second occupation, for he relies mainly on his field products. Flesh is part of the dietary the year around, but particu- [262] larly during the fall and winter when they reside on the plateau. Antelope, mountain sheep, and deer are said to abound in the order named, while cotton-tails, jack-rabbits, and squirrels are plentiful. Hunting in the gorges of the Grand Canyon is really a hazardous enterprise. One instance was recorded of a wounded ram charging his pursuer and hurling him from a narrow ledge. Yet killings are sometimes tame affairs: one man standing at the door of his house shot a mountain sheep but a hundred meters away. They frequently descend the canyon close to the village.

[1] Gayton, 344.

MANUFACTURES

Basketry

415 Baskets are the most important domestic utensils. A dozen or so may be found in each household; two or three burden baskets, half a dozen trays holding foodstuffs, one or two parching trays, a water bottle or two, and in the old days, boiling baskets. Basketry is entirely women's 285 476 work, to which they devote most of their spare time, particularly the [460] long midday period when household duties are light. Wherever women gather, basketry may be seen; the hostess working at her products, the

[485] [482]

Fig. 6 *a* (80.2-1234), *b* (80.2-1651), *c* (80.2-1230), *d* (80.2-1237), *f* (80.2-1643), *g* (80.2 1645). Havasupai Basketry Forms. *a*, Burden basket; *b*, Tray; *c*, Boiling Basket; *d-g*, Water bottles.

guests plucking and preparing twigs from the nearby bushes, or more commonly helping the hostess at such tasks. Women do not usually 285 carry their unfinished wares further than a neighbor's camp; not even the coiled baskets which are worked on only intermittently and regarded much as our women do embroidery. Twined baskets are worked on more consecutively; a tray basket, depending on its size, may be completed in a few days; a burden basket is worked at off and on for a month. They consider twining hard work because continual pulling at the stiff wefts bruises the fingers badly. Expertness is recognized and prised; a few women are widely acknowledged as preëminent.

[text continues on p.127]

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Fig. 7 (50.2-1634, 1235). Burden Baskets.

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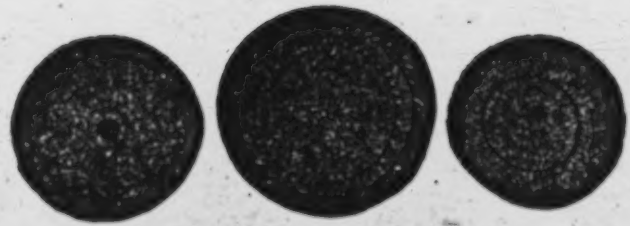

Fig. 8 (50.2-1247, 1648, 1654). Basketry Trays.

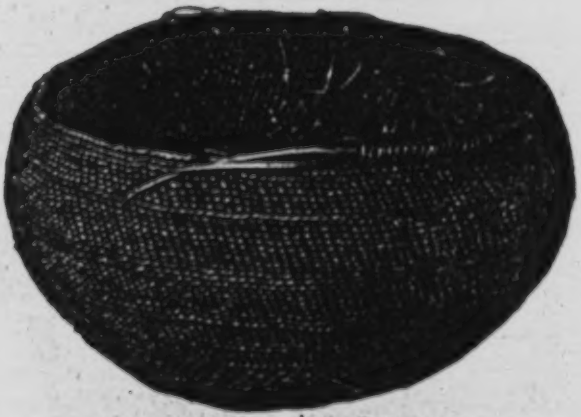

Fig. 9 (50.2-1250). A Boiling Basket.

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Six types (Fig. 6) are recognized: burden baskets (*gdθθ'k*), water bottles (*sdwd*), shallow bowls or trays in twine (*gdθd'ā"*) and coil (*gd'ā"*), stone-boiling bowls (*ha'ugwθtdlq'mia*, water, something, boil) in both techniques, and parching trays (*gdθdu'ulatd*, lit. old twined tray). Burden baskets, water bottles, and parching trays are made with twine weave.

While the weaving is quite coarse and uneven, with the exception of a few coiled pieces, many of the baskets are surprisingly water-tight. However, most baskets for liquids are rendered tight with some sort of coating, mescal juice or cornmeal mush. Trays in which mush is placed soon become impervious; the mess is sometimes rubbed into the interstices with that end in view. Small water-tight trays are used as pannikins to drink from. Water bottles receive a heavy coating of piñon pitch as well as soapweed paste.

Burden baskets are conical; some have a slight reverse curve near the apex which produces a nipple effect (Fig. 7). Two loops to receive the carrying band are inserted in the side of the basket somewhat more than a third of the distance from the rim. After the basket is completed pressure is applied to make this side flat so that the basket will not roll from side to side on the back. These baskets are generally made in three sizes: that used by the women measures about 60 cm. in diameter at the mouth, and 45 cm. in height; a smaller size used by half-grown girls is about 50 cm. by 45 cm.; that of small girls about 35 cm. by 32 cm.

Trays are used to hold seeds, meal, fruit, mush, and a host of other foodstuffs (Fig. 8). Twined trays are roughly of two sizes, although the variation is considerable; 40 cm. in diameter by 9 cm. in depth, and a smaller size 30 cm. by 6 cm. Occasionally these are quite conical. Fewer coiled trays are made: these are about the same size. They are somewhat flatter on the bottom than the twined ware. Parching trays are simply old twined trays, as their name implies, which are given a protective facing. Only the larger size of tray is used for this purpose.

Stone-boiling disappeared years ago so that descriptions of the baskets used for this process are somewhat vague. Apparently they were the same size as trays but quite deep, really bowls. One basket said to resemble them is 38 cm. in diameter and 23 cm. deep, quite globular, with a mouth slightly smaller than the body (Fig. 9). Smaller coiled bowls, such as those now sold to tourists, may have been used for stone-boiling. Cushing figures a coiled boiling basket, bottle-shaped, with rounded base and wide mouth.[1]

[1] (b), Fig. 333. This shows the bundle foundation which my informants denied was ever used.

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285 415 Water bottles are biconic with gentle reversed curves giving a nipple effect to the pointed base and narrow mouth (Fig. 10). These are about 35 cm. in diameter and 25 cm. in height. Two thongs are inserted just above the maximum diameter to take the burden band. Bottles (*sdwɔgalagólíxá*) are also made without the lower cone, that is, with a flat or rounded base.[1] Occasionally this flat base is pushed inward. A third type was used when traveling afoot. It has an hourglass shape, with a flat bottom, and the upper part brought to a narrow mouth. This was

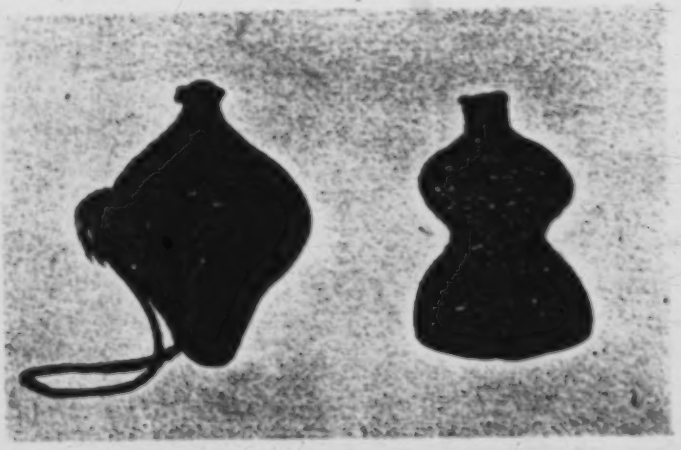

Fig. 10 (50.2-1237, 1645). Two Types of Basketry Water Bottle.

carried at the small of the back by a thong encircling both the wearer's waist and the constricted part of the bottle.[2] A bottle is stoppered with leaves or a corncob.

285 The best material for twined baskets is acacia twigs (*kd'djd'sd*, *Acacia greggii* Gray) which are gathered when green. If picked dry, or if dried in storage, they are soaked two or three nights before using. Cottonwood and willow twigs are inferior. These, too, are gathered green. They may be used for either warp or weft, or in combination with acacia. Mesquite is never used.

[171]

[1] Two figured by Mason, O. T., as Havasupai have the coil technique and shape of neck of Navaho specimens, (6), Plate 22, Figs. 4 and 5, see p. 230.]

[2] Similar bottles occur among the Cuchan Apache (50-8722) and Pueblo (Peabody Museum, Salem). The Zuñi are also accustomed to carry small objects at the small of the back in a cloth tied around the waist. The Huichol have a similar double water gourd (Lumholtz, (c), II, 230).

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The acacia twigs are stripped of leaves by drawing them through the hand protected by a cloth. They are roughly sorted and the butt ends trimmed off giving two sizes, sixty cm. and one meter long. The butts of those in the short bundle are mashed soft between two stones. The long twigs are split in three beginning at the tip, using the teeth and each hand (Fig. 11). Only the outside strips are used, the inside third being discarded. These strips are scraped to a uniform thickness by drawing them a few times across a knife held in the hand. To start

Fig. 11. Splitting Basketry Twigs in Three.

weaving, two pairs of long twigs are held so that they cross at right angles at their midpoints. A weft strip is bound twice across the junction and the ends then woven alternately over and under the ribs (Fig. 12–14a). The direction of weaving is clockwise with the face or inside of the basket toward the weaver. After twining twice around these four ribs, another rib (*sidjó'k'id*) is inserted, being caught into the twine stitch (*kʼipdwá*, twine or coil stitch). The mashed end of this short twig is first softened still further in the mouth, permitting it to be drawn in tightly by the weft. The butt end protrudes on the under side of the basket

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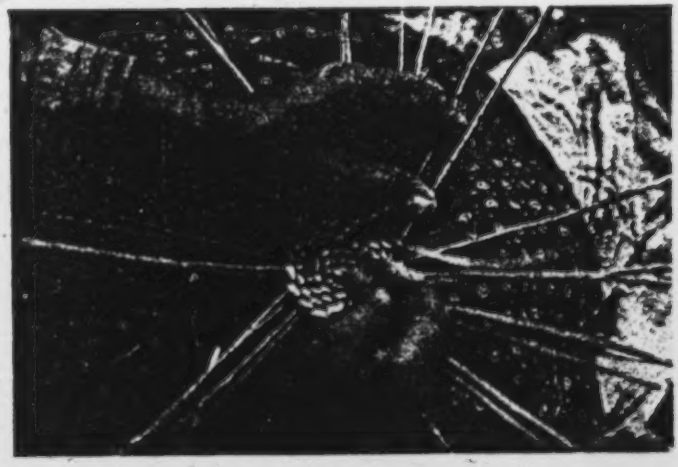

Fig. 12. Beginning of Twined Tray and Burden Basket Weave.

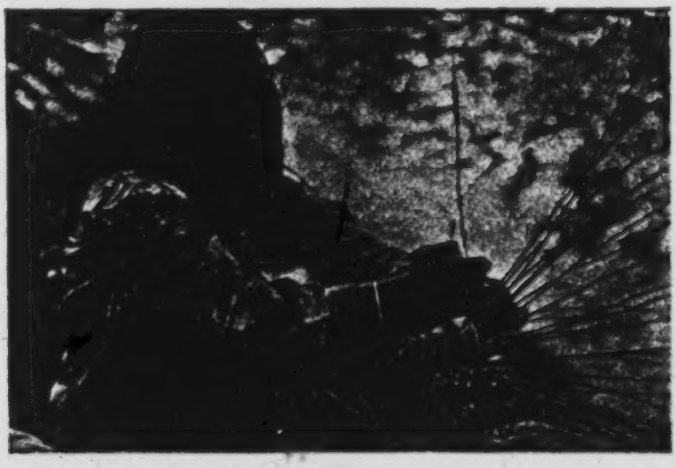

Fig. 13. Weaving the Burden Basket or Water Bottle.

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beyond the stitch by which it is held. New warps are successively inserted in this manner, care being taken to keep them regularly spaced. The wefts are constantly wetted so that they will remain pliable. Most baskets begin with diagonal twining (*gwigi*), the weft crossing two warps at a time. A few begin with simple twining (*gwiwigi*), weft crossing single ribs, but soon change to diagonal weave. In fact, one of the most characteristic decorative effects is due to frequent change from simple to diagonal weaves on the same basket. Diagonal twining is, of course, more rapid. In all cases the warps are inserted one at a time. While weft elements are twined in pairs, new strips are added singly. The butt of the new strip is inserted between the old weft and the rib, and is caught tight by the next stitch formed by the opposite element. The white, inner side of the weft strip is on the face of the basket, i.e., the inside of a tray or the outside of the burden basket. The warps of trays are invariably pulled backward in weaving, i.e., to the weaver's left. 285

The burden basket or water bottle is begun in the manner described for the twined tray. When the woven area is about five cm. in diameter the warps are sprung up from a flat plane to a conical position. The tension of the weaving makes this very easy. The basket is now held apex down in front of the weaver, who continues twining from left to right on the near side of the basket (Fig. 13) From the weaver's point of view this is weaving as before, right hand in front of left, but if the basket is viewed from the top or inside, the direction of weaving will be seen to have changed from clockwise to anti-clockwise. After the ribs are sprung up, the warps are turned back on themselves to twine in the opposite direction. At the time they are reversed so that the white inside of the weft strip will be on the outside or finished face of the basket. New wefts and warps are inserted in the same way as in the trays: rows of warps are added at regular intervals. A tray is forced down between the warps to hold them in a conical position. The apex of many burden baskets and most water bottles protrudes in a nipple effect, that is, the sides have a reverse curve near the bottom. This is undoubtedly due to the fact that the pressure of the tray causes the loose warps to flare out in trumpet shape: later the warps are drawn together near their upper extremities to counteract this flare. Hence the sides first curve out and then in. While the shape clearly results from the technique, there can be no doubt that the effect is at the same time intentional, for it is an almost invariable feature in water bottles. The warps of the water bottle are bent inward to the neck without other guide. This portion is given a reverse curve to match the bottom. As the diameter lessens

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285 some warps become superfluous: these are cut off short. A cap of rawhide, soaked in water and stretched into shape before it sets, is sewed on the apex of the burden basket with a through and through stitch

285 Three strand twining[1] is commonly introduced on all types of baskets for decorative purposes. The strand usually crosses two warps, giving 531 a much closer stitch than diagonal twine. Three strands crossing three and sometimes four warps are also used decoratively. There is no great regularity in inserting these stitches; crossing threes often lapsing into crossing fours, and vice versa. The majority of water bottles are made in three strand twine over two warps; the beginning seems to be always diagonal twine. Why water bottles are usually decorated with contrast twine stitches is a mystery, because the surface cannot be seen under the liberal coating of pitch! The last row in both trays and burden baskets is almost invariably three strand twining; this often extends to the last two rows, and occasionally to the last three or four rows of trays alone (possibly because their peripheries are much less than those of burden baskets).

285 To finish the edge of the water bottle, burden basket or tray, the ends of the warps protruding beyond the woven fabric are first thinned by splitting, then bent to lie along the rim, and bound together with a coil stitch running around the rim. Split acacia or mesquite is used for this. The free ends of the two weft elements are included in this bundle of warps. A hoop of hard *amárd'd* wood (which grows up the canyon, not near the village) about one cm. in diameter is bound on top of this rim in trays and burden basket with a coil stitch. Occasionally this extra hoop is omitted. Gaps are left in the binding of this hoop in some baskets: this has a certain degree of decorative effect.

Two loops to which the burden band is fastened are inserted in the burden basket and bottle. Each loop is fashioned of a thong which passes through the basket three, four, or five times. The loops on bottles are invariably horsehair, braided of two strands or bunches; those on baskets are said to have formerly been of the same material. The burden band was formerly made of soapweed. The longest leaves of this plant were dried until yellow, mashed between rocks, and soaked in water to remove the connective tissue. Three of these were braided into a band.

Trays intended to hold very fine seeds and parching trays are coated on the interior with the sticky connective tissue of mescal (or soapweed?) leaves. The leaves are crushed in the hands and rubbed over the basket.

[1] Some of this may be three strand braiding.

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Sometimes peaches, etc., are rubbed over the interior of parching trays to prevent them from burning.[1] 285

When the water bottle is ready for its coating, it is vigorously rubbed all over with a dry corncob so that the fine fragments of the latter will fill the interstices. A mouthful of water is sprayed over the basket, then the soapweed paste is smeared on and rubbed in. This paste is made of old soapweed stalks which are pounded, the connective tissue worked up with water into a dough, and set aside for future use. When wanted it is pounded up and again mixed into a paste with water. After this is applied, a handful of red paint powder is mixed with water and smeared over the still wet bottle.[2] The bottle is then stood in the sun to dry. It next receives a coat of piñon pitch (*ðnaiá*). The clear gum of this tree is picked off the bark, and boiled down for ten or twenty minutes until dark brown. A quantity (six or seven cupfuls) of the liquid is poured inside the bottle. Brush is stuck into the mouth to serve as a handle. The bottle is then laid on its side near a bed of coals—the pitch is highly inflammable—and continuously turned over, the heat preventing the pitch from coagulating until it has filled all the interstices. More pitch is evidently poured or swabbed over the exterior of the bottle, which rests on a bed of brush piled over the coals.[3] A piece of cloth or buckskin is frequently placed over the pointed bottom; one bottle (50.2–1640) has a pad of loosely woven yucca fiber, sticking tight to the soft pitch. The pitch does not melt in the sun to any extent after it once hardens. 285 381

The material used in sewing coiled baskets is the twig of the *gúðaiⁿk* (which grows up the canyon, not near the village) or the cottonwood. The bark is scraped off and the wood split. The split sections are scraped to uniform width. They are prepared at leisure and coiled for storage like those of the Pima.[4] When desired for use they are soaked in water. All coiled baskets are sewed on a three-rod foundation; all three rods being of the same size.[5] The ends of three peeled and scraped cottonwood twigs are mashed and tied in a knot. One end of the sewing element is passed under one rod (*djlmlá*) close to the knot. The rods are started in a spiral and the binder stitched around them into the center 285 [171]

[1] Cushing states that these trays are "coated with mineral asphaltum and earth", (a), 550. This is incorrect; no earthy substance is ever used. His mistake is natural since the ball of mineral tissue which is kept for the purpose looks very much like clay. The point is important, for Cushing's theory of the development of pottery from earthen linings for baskets, based on the Havasupai case, has been widely quoted, (b), 484–493. [114]

[2] I do not understand why the bottles are colored, unless it is intended that this coating color shows through the pitch which is subsequently applied.

[3] My notes are not explicit on this point.

[4] Kissell, Fig. 45.

[5] Bundle, single, or two-rod foundations are never used.

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285 of the knot (Fig. 14b). The succeeding stitches of the first coil are also sewed into the knot. The rods are now arranged so that two lie along the completed coil with the third on top and between them. The stitch in the succeeding coils is intended to pass under the third rod, but in most specimens it pierces this rod which the awl splits: it is said that this does not matter. Stitches are spaced to pass between those of the previous coil; not to split them. Stitching is usually fairly regular, but not fine. After two coils are in place the mashed ends of the rods which protrude at the center are trimmed off. Stitching is always from right to left; the left hand holding the free ends of the rods in place while the right manipulates the awl. The sewing strand is brought over the rod toward the sewer and through the coil away from her. The coiled tray, like the twined variety, is held with the finished interior face toward the sewer; stitching proceeding on the far edge.[1] In bowls the finished face is the outside of base and wall: stitching proceeds on the far side of the base, held bottom up, and on the near side of the wall while the bowl is held right side up. That is, viewed from the top or inside, the trays are coiled anti-clockwise and the bowls clockwise, but the direction of sewing is in both cases exactly the same. There would therefore be no technical difficulty in a woman turning a tray into a bowl, but since the hidden face is always left somewhat rough, the decision to make a bowl must be made as soon as the basket is begun.

Fig. 14 (30.2-1663, 1664). Manipulation of Initial Basketry Stitches. *a*, Beginning of twine stitch; *b*, Beginning of coil stitch.

The black decorative figures in coiled and twined wares are made 285 531 with the black outer layer of the seed pod of the martynia or devil's claw (*hald'k*^{a}). Two varieties are used: one, with hooks 15 to 20 cm. long is indigenous. The second variety, with hooks 25 to 30 cm. long, [177] was introduced by Pagadjahuda, a Walapai woman who married into the tribe years ago, and who obtained the plant from her elder sister who in turn got it from the Paiute. Although the wild plants are also used, it is customary to plant martynia at the same time as corn. The pods

[114] [1] Mason misinterprets his Plate 200, (k), also 487: the unfinished face is not the interior.

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are ripe in October. It is not necessary to pick them before the first frost.[1] Unlike the Pima and Papago only the hook-like appendages of the pod are used: these are broken off before the black fiber is split from them. When dry they may be soaked in hot water. Two strips of the black coat are split off with the teeth, beginning at the tip; the remaining interior third is discarded. To reduce the strips to a uniform width, they are held between teeth and hand while a knife is scraped along their edges.

In decorating twined baskets the black strip is substituted for one or both white wefts, the latter being cut off short. One end of the black

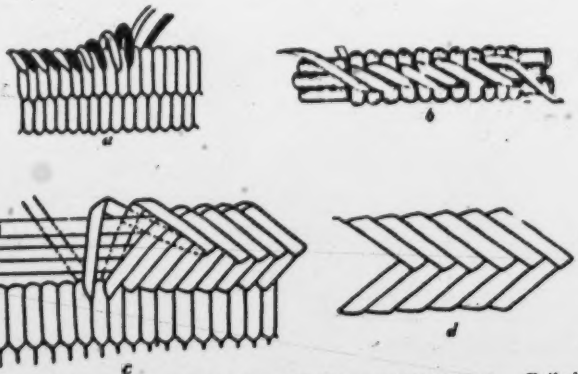

Fig. 15 *a* (50.1-4231, *b* (50.2-1242), *c-d* (50.1-4224). Coiled Basketry Edges. *a*, Two-strand edge of coiled basket; *b*, Three-strand edge of coiled basket; *c-d*, Edge of a coiled basket having the appearance of braiding (*c*, side view; *d*, view of the rim from above).

strand is caught between the two lower foundation rods of the coiled basket, sewing then proceeding as with the white strand. The ends of the introduced strands protrude somewhat on the unfinished face in both types of basket.

The rim of the coiled basket is finished by cutting off the three rods successively so that the coil will taper to an end. The rim is usually left without any further finish, but in a few specimens borders in other styles are added. The simplest consists of a diagonal over and over stitch with two strands (Fig. 15a). Apparently the binding is from left to right, working from the outside of the basket; that is, contrary to the

[1] Pima and Papago pick the pods before the frost turns them gray (Russell, 282).

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direction in which the coils were sewn. The binder stitch pierces the top coil between two stitches, returns toward the worker over the rim, and is inserted again between the second and third coil stitch beyond, thus alternating with the other binder strand. A second type of border is identical except that three strands are used (Fig. 15b). A third type (Fig. 15c–d) presents a braided appearance. In this case after the last coil was completed the three foundation rods were carried around for another row. The stitching on this is from right to left, working from the outside on the near wall of the bowl, that is in the direction in which the basket is coiled. A single binding strand is used in figure-eight fashion, the forward loop passing under all three rods and through the top coil, and the backward loop passing under the upper rod only; all stitches are diagonal. That is, the strand is brought down in front toward the left over all three rods, through the last coil, up to right in back, over the rim forward, down to right in front, through under the upper rod, up to left in back, and over the rim forward to repeat for the next stitch. The back loop crosses four forward loops.[1] Mason describes the same type of border stitch, but with only one lower rod and with the stitching from left to right.[2]

While the direction of weaving varies in these baskets, it has always the same motor basis, the actions of a right-handed weaver. At present there are no left-handed women whose peculiarity might affect the technique.[3] The direction of twine weaving is always from left to right, the active right hand ahead: that of coil weaving is from right to left, the active right hand following. Whether the coil is clockwise or anti-clockwise depends then on how the basket is held. In particular the change in direction on burden baskets, bottles, and coiled bowls results from the inversion of the fabric during the process. The resulting direction of the coil baskets agrees with that of other Southwestern tribes. These observations support Wissler's contention that tribal differentia in direction are not based on physiological peculiarities, but are the subject of traditional habits. On the other hand, the apparent change in direction on a single basket suggests the necessity of a more refined analysis of types in determining their distribution. The desideratum is a record of the tribal hand positions.[4]

The decoration on Havasupai baskets is very simple. Twine baskets are decorated by contrasting bands of diverse stitches. Usually bands of

[1] This stitch is used as a method of fastening a Walapai basket in my possession, as well as one from the Aztec ruin and as a border of a bowl from the same place.
[2] Mason, (l), T., (b), 276, Fig. 87. Compare Matthews, (b), 203.
[3] There is one left-handed girl and one man.
[4] Wissler, (c), 494–501; Kroeber, (g), 49–51.

1: Spier E-5 (1918) 1928
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plain twining alternate with wider bands of diagonal twining. Contrast is also obtained on the same baskets with three strand twining, since rows of this stitching are raised above the surface of the basket. The bands of three strand twine are uniformly very narrow; usually only one or two rows. Water bottles are commonly decorated in contrast twining, although they are subsequently pitch-coated to an extent which obliterates the decoration. I can see no other reason for this display of unfruitful energy than exuberant interest in utilizing a controlled technique and producing a pleasing effect for the moment. Only a very few are ever kept or traded without the pitch coating.

285 ● 531

Designs (*tĕnyúʰlgâ*, a so tattoo marks, face painting) are woven in twine and coil baskets with black martynia. These do not represent objects, and in fact, the women repudiated the idea that any meaning might be read into them.[1] There are no recognized design units nor design names: the women did not seem inclined to speculate about them. All the designs are extremely simple.

Twine trays are decorated with a single circular line, one row wide, or with the same line with short spurs, usually oblique, either on the inside or outside, resembling a cog-wheel with oblique teeth. The same series of teeth are used without the base line. Other decorations are a central circular area, filled solid; a horizontal zigzag line; or simple combinations of any of these. Burden baskets have one to three decorative bands around the upper third; using the same units (except the solid circle) and in addition a band of equilateral triangles, usually filled solid, and with basal angles in contact, or with bases or vertices touching a narrow line running around the basket. A band of two opposed dentate lines is frequent. Water bottles do not have design decorations.

One curious feature is a disinclination to decorate that part of the burden basket which will rest against the back and so will not be seen. The first, i.e., the lowest, band is usually carried around this portion as well, but subsequent bands are progressively executed with increasing carelessness or omitted entirely at this point. (Fig. 7.) This, of course, is contrary to the spirit which accounts for the decoration of water bottles in contrast twining.

A few baskets have the spurs of the dentate bands vertical, that is, following the warps. In all other cases observed, with one exception, the spur lies obliquely in the direction of twining, that is, with its lower end nearer the weaver's left hand and inclining upward to the right. Nearly all such designs are in diagonal twine. I think we have here a clear case of the influence of technique on design. In the first place, the

[1] This does not prevent them from providing interpretations for the tourist trade.

1:Spier E-5 (1918) 1928
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285 531 right hand of the weaver twisting the wefts turns outward on the wrist (which is perhaps easier than turning inward), carrying the forward strand away and down, and the back strand forward and up. With the stiff wefts that are in use, each stitch inclines upward to the right both in the diagonal and plain twining. But more important is the overlap produced in diagonal twine of the rear end of each stitch with the forward end of that in the row below. This results in a diaper effect running upward to the right. This in itself would suggest that when decoration is introduced, the diagonal lines should move forward in the direction of weaving. Furthermore, there is no continuous diagonal line toward the left, for these stitches are separated from one another by short intervals of bare warp. Of course, it is no more difficult to weave the diagonal lines running toward the left, but the effect is not so pleasing.[1]

[177] It is difficult to say how coil baskets were decorated, since most of them are made now to conform to tourist demands. One tray in use has a single horizontal band, for the most part one coil wide but the width of two coils at regular intervals. Short lines appear at other points. The trade baskets have in part the designs found on twine wares, with the addition of units copied from the products of other tribes seen at the stores. As with the twine baskets, there is very little attempt at design composition and diverse units are crowded on the same basket without regard for their appropriateness. According to the Indians, baskets with much decoration sell better than others, but this is quite contrary to their own feeling that those which are sparsely decorated are preferable.

The hoods of the cradleboards (Fig. 55) and the seed beaters (Fig. 3) are also basket work.

Pottery

323 415 [177] [178] Clay vessels, more often used in cooking than baskets, were displaced by metal products about 1870. The only native ware is a small, unslipped and undecorated, coarse, brown pot of the type common to all the nomadic tribes of the Southwest and adjacent sections of California (Fig. 16). The pot (*hamdt*) is globular, with a slightly constricted neck turning out in a lip (*ya'*, neck and lip?) sufficiently large to permit lifting with the finger tips. The size is reported as usually 30 cm. in greatest diameter 23 cm. in height, and 23 cm. across the mouth, but ranging down to a height of 22 cm. and a diameter of 12 cm. These lack handles or lugs.[2]

[1] See (a), T. Mason's diagrams, (b), Figs. 19 and 20.
[2] Fig. 16 represents a vessel excavated at the Lagoons north of Pine Spring. It is of the type described, but it cannot be certainly ascribed to the Havasupai because of its somewhat greater size and handles.

1:Spier E-5 (1918) 1928
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415 Gourds having an hourglass shape are used as water jugs on foot journeys. They are carried at the middle of the back, held by a rope which passes around the traveler's waist and the constricted portion of the gourd.

Knives. The stone knife (*kwaiyd'l;* also arrowhead) is lanceolate,
324 as large as one's hand, sharp on both edges, somewhat pointed, but with
412 a blunt base. Obsidian is preferable, but flints are used. It is not known whether such knives were hafted: they are no longer made. Another knife (50.2–1219) is a broad flake, with long chips struck from one face only. This is conveniently held between thumb and forefinger.

Cutting movements, as in wood working, are always toward the body

Stone is not drilled; drilled beads are obtained elsewhere, as among the Hopi. Holes are drilled in wood, bone, or horn (as in the arrow wrench) with an arrowhead, revolving the shaft between the palms.

Sleeping Mats. These (*tcĕkedlakwi'vd*) are made of strips of cedar or
285 juniper bark (*tcĕkedld*) pounded until soft, but not rolled into rope. The larger mats are rectangular, 1 m. by 75 cm., woven with both warp and continuous weft of bark. The ends are bound by stitching with a cord at 2 cm. intervals. Smaller mats are used, and owned, by children. These
[422] are somewhat elliptical, with nearly parallel sides. The warp, coiled from center outward, is crossed by twined wefts (cords) placed radially. Neither blankets nor clothing are made of cedarbark.

Rope. Ropes are usually of yucca fiber, but tanned hide is also used.
283 The inner leaves of a dead broad-leaf yucca are selected, pounded singly between two smooth stones, and flexed with the fingers to remove the connective tissue. The fibers are finally separated by continuing the flexing of a bundle of such leaves rendered pliable with water.

Yucca ropes are three- to six-ply, usually three. These are braided of bundles of fiber; the bundles are never rolled into strands. New lengths are introduced, as required, by simply laying them between two crossing elements. If the fiber is dampened the rope will shrink tight. Three-ply ropes are commonly about four meters long and 1.5 cm. in diameter.

The hide ropes may be of deer, antelope, or mountain sheep skin; the last is strongest.[1] These are also braided of three to six strands. One seven-ply specimen (50.2–1231), nearly six meters long, is flat (0.5 by 1.2 cm.) and the plaiting presents a herring-bone pattern on both sides.

[1] Curiously my informant referred to all articles derived from this animal as best.

1: Spier E-5 (1918) 1928
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several days, being taken indoors at night; they require attention during this period. As many as twenty or thirty arrows were kept at a time in quivers. 411

The best quiver (*n$_y$dpâwd*) is made of mountain lion skin.[1] Only rich men have these; poor men are satisfied with the hides of fawns or of the young of mountain sheep. The tanned lion skin is folded lengthwise hair side out and cut as shown in Fig. 26. The edges are turned back outside and sewed together with a running stitch. A circular piece of thick buckskin is sometimes sewed into the base (the neck) end, like the end of a can. A stick of the diameter of an arrow is placed in the 281 411 [556]

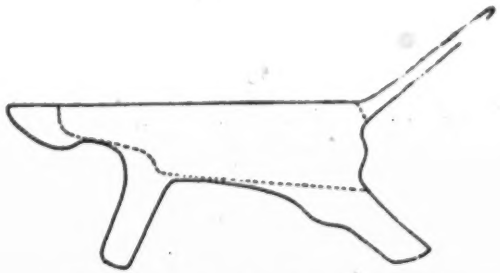

Fig. 26 (50.2-1601). The Pattern for a Mountain Lion Quiver. Based on the specimen shown in Fig. 23.

longitudinal seam where it is bound in with an over and over stitch. The tail hangs free as an ornament. Thongs are attached at quarter points along the stick to suspend the quiver.[2] It hangs obliquely from the right shoulder, under the left arm, with its mouth pointing up and back. It is adjusted so that the midpoint comes at the waist, and a thong is tied about the body to hold the quiver close to the side.

Comparative Notes

The distribution of two types of basketry will be considered here, the conical burden basket and the bi-conical water bottle. 171 285

Conical baskets are characteristic of California and the adjacent sections of the Great Basin and the Southwest. Without attempting to canvass thoroughly the literature and collections, I find it in California

[1] The Navaho and Apache look on the mountain lion as a hunting god, and its skin is in demand for quivers (Bourke, (e), 436.)

[2] An identical quiver from the Navaho is figured by Mason, (e) T. (6), 19 LXXIX, fig. 1. The use of mountain lion skins for quivers is quite widespread in the west, but it may not be universal. [171]

1:Spier E-5 (1918) 1928
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among the Klamath, Modoc, Atsugewi, Achomawi, Maidu, Pomo, Lassik, and Chemehuevi.[1] Kroeber states that the Yumans of the lower Colorado do not make basketry and his paper on Mission basket decoration does not figure conical carrying baskets.[2] Furthermore, we know

Fig. 27. Distribution of Basket Types. Triangle, denotes conical burden basket; square, rectangular burden basket; circle, biconate water bottle.

that the carrying net is used in southern California;[3] hence, we should presumably exclude all groups south of the Chemehuevi. Eastward this type is in use among the Paviotso, Ute, Kaibab, Shivwits, Moapa, and Panamint, and in Arizona among the Walapai, Havasupai, Yavapai, and San Carlos Apache.[4] East of this the carrying basket is different.

[1] Barrett, (a), 256; Dixon, (c), 214; (a), 180; Mason, O. T., (g), 437–439; Kroeber, (g), 43.
[2] Kroeber, (g), 54; (m).
[3] Spier, (c), 343.
[4] Lowie, (i), 232–237; Powell, 129; Dutcher, 379; Curtis, II, 93; Dorsey, G. A., (b), 196; Carbuncler, 225; Hrdlička, (d), 484–486.

1: Spier E-5 (1918) 1928
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The Hopi, Zuñi, and Navaho are credited with a type that is square, flat-bottomed, and built up on a framework of two bent sticks. The Western Apache have an analogous form, but without the sticks. The Pima and Papago have an unusual carrying device of netting on a frame.[1] Its conical form suggests the conical basket under consideration; its general structure the carrying net of southern California. North of California the burden baskets are not conical, I believe. The data cited above suggest a continuous area of distribution of this type. There are obvious local differences, however. For example, open twined weaving is not used in this connection in Arizona though it occurs in the Great Basin and perhaps in California.

The water jug is commonly biconate and with a small mouth like that of the Havasupai. It is in all cases, except the Washo, coated with pitch and provided with two loops of hair on the sides to take the carrying band. This type of basket is in use among the Northern Shoshoni, Gosiute, Southern Ute, Paviotso, Washo, Moapa, Kaibab, Kawaiisu, Chumash, Mission, Cahuilla, Walapai, Havasupai, Tonto, White Mountain and San Carlos Apache, Mescalero, Pima, Hopi, and Navaho.[2] It does not occur on the lower Colorado River, among the Salinan,[3] nor, I think, elsewhere in southern California. Hough reports that the Hopi obtain these baskets from the Apache, Ute, and Havasupai; Hrdlička that the Navaho get theirs from the Ute. There is some question whether the Cahuilla make such baskets. For the Gosiute and Washo these are seed baskets.

There are local differences in the technique and the shape of the neck and base. Southern Ute, Navaho (?), Hopi, and some Moapa specimens are in coil technique; Paviotso, Washo, Moapa, Cahuilla, Walapai (?), and Havasupai are in twine. The twined vessels have conical bases, as a rule, even with the reverse curve which produces a nipple-shaped point, so that this feature seems really to be a function of manufacture by twining. Some vessels have funnel-shaped necks with wider mouths (Northern Shoshoni, Southern Ute, Navaho, White Mountain Apache). The Ute and Navaho examples are coiled, which is also the case with the Moapa pieces of this shape.

The decorations on coiled baskets and twined burden baskets and trays of the Paviotso, Moapa, Yavapai, and Walapai bear definite re-

[1] Mason, O. T., (g), 462-465; Franciscan Fathers, 263; Kissell, 228f.
[2] Lowie, (a), 179; Chamberlin, (b), 341, 345, 374; Lowie, (i), 237, 241. Washo, Kawaiisu, Chumash, and Mission specimens in Museum of Anthropology, University of California; Kroeber, (g), 45; Smart, 419; Curtis, I, 21; Dodge, 103; Dorsey, G. A., (b), 41, 1905; Hough, (e), 203, 206; Mason O. T., (g), 463; (i), 114; Hrdlička, (a), 342; Stanley and Weston, 32.
[3] Mason, J. A., (a), 146.

1:Spier E-5 (1918) 1928
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171 semblances to those of the Havasupai. Martynia as a decorative material
285 is used by the Pima, Papago, White Mountain and San Carlos Apache, Yuma Apache,[1] Yavapai, Havasupai, and Shivwits.

Pottery has an extensive distribution among the historic peoples of
171 the Southwest. It extends throughout southern California and through
323 the center of the Great Basin as far as the Salmon River in Idaho. In addition to the Pueblos, it has been found among the Northern Shoshoni, Uintah and Southern Ute, Navaho, Jicarilla, White Mountain and San Carlos Apache, Havasupai, Walapai, Yavapai, Pima, Maricopa, Kwohatk, Papago, Opata, Seri, Yaqui, Cocopa, Yuma, Mohave, Southern Diegueño, Luiseño, Cahuilla, Chemehuevi,[2] Moapa and Shivwits Paiute, and the southern Sierra Yokuts and Mono.[3] Whether it was manufactured by the Serrano and Salinan is doubtful. There is positive evidence that within this area it was not made by the Wind River Shoshoni on the one hand and the Paviotso on the west, nor by the Tonto Apache, Gabrielino, and Chumash.[4]

The pottery of this whole group is scanty and crude in comparison to that of the Pueblos. It is generally a rough brown unslipped ware, commonly undecorated. The Mohave and Pima form an exception, for they have the ware not only in quantity, but with considerable finish.[5] In general the pottery of the lower Colorado tribes and those adjacent on the Gila and in southern California is a somewhat specialized product. The body color is reddish, decorated with darker red, black, or yellow lines. Pima and Maricopa ware is cream colored, but in general of the same sort. Ornamentation is by angular figures, parallel lines, triangles, etc., always in the same general style. This is common to the Mohave, Cahuilla, Yuma, Southern Diegueño, Papago, and probably some of their neighbors. Pima decoration is sometimes more involved, being in part in imitation of the prehistoric wares of the Gila Valley. But the character of line at least is quite like that of their western neighbors. Navaho pottery is decorated by incising and painting; the style is unknown to me.

The shape of the larger vessels is much the same among all the rancheria groups; globular ollas with either slightly restricted mouths or with wide necks tapering directly up from the greatest diameter of the

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[1] Gomez, (c), 183.

[2] Kroeber, (g), 641. Yet in another place it is implied that the Chemehuevi did not make pottery [Kroeber, (i), 242].

[3] Lowie, (a), 177; (b), 228 f; Stephen, 388; Franciscan Fathers, 218, 286, 295; Curtis, I, 20, 34, 99; Hrdlička, (d), 487; Carbonell, 334; Hrdlička, (e), 43–44; Russell, (c), 124–131; Gaillard, 294; Dorsey, G. A., (b), 198; Bandelier, (a), 230, 242, 257; McGee, 182; Hopa, (c), 222; Pattie, 196; Heintzelman, 48; Trippel, 575–577; Kroeber, (a), 277; Spier, (a), 348; Sparkman, 202.

[4] Kroeber, (g), 60, 84; Mason, J. A., (a), 142; Smart, 419.

[5] Their pottery may be slipped like that of the Pueblos, but I can find no reference to this in the literature and doubt it.

1:Spier E-5 (1918) 1928
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Havasupai

171 372 Most Southwestern peoples, like the Havasupai, use a simple fire-drill, a single piece of wood. The composite drill, having a short fore-shaft of wood of a special sort set in the end of the drill, occurs in this area among the Navaho. The Hopi use it at least in their New Fire ceremony. Northward it is distributed among the Paviotso, Klamath, Modoc, Washo, Lemhi and Wind River Shoshoni, Crow, Green River Salish, and Snohomish or Snuqualmi.[1] The materials used might be compared. I note that the Havasupai use the flower stalk of bear grass for the hearth, the White Mountain Apache that of *Yucca baccata*, and the Navaho a soft stalk of a large weed. The Shivwits, like the Havasupai, use mesquite for the drill. With regard to the pits on the hearth, the Paviotso prescribe four as the standard number. Similarly of the Navaho hearth, it is said "small holes, sometimes four in number, were cut into it,"[2] and one Havasupai specimen (50.2-1224) has four holes, but this was not specified as standard for them. The Shivwits made pits all along the hearth. It may be that we have here a diffused trait; on the other hand, it may be nothing but an expression of the pattern number, four, obtruding itself on every occasion.

The slow-match, a long roll of cedar or sagebrush bark, is widely distributed through the western plateaus. It is used by the Havasupai and by the Navaho according to them (p. 226), Hopi, White Mountain Apache (?), Wind River and Lemhi Shoshoni, Klamath, Modoc, Thompson, and Nisqually.[3]

285 171 Bark mats or blankets may be in general use throughout the plateaus. The smaller Havasupai type, woven spirally, is also found among the Navaho.[4] Reed mats are used instead by the Pima, Luiseño, Northern Shoshoni,[5] and Maidu.

171 411 237 As Mason and Wissler pointed out years ago the sinew-backed bow is found throughout the western plateaus, in the western Plains, and on the Pacific slope.[6] The following notes will help to define its range with greater precision (Fig. 28).

In the Southwest it is used by the Mescalero, Jicarilla, Southern Ute, Navaho, White Mountain Apache, and Havasupai.[7] There is a prehistoric sinew-wrapped bow from southern Colorado in the Museum

[1]Hough, (e), 345; Fewkes, (d), pl. 3; Lowie, (i), 222; (a), 189; (h), 214; Hough, (a), 536-543; Barrett, (a), 257; Hasberlin und Günther, 15. Washo information from Doctor R. H. Lowie, 1920.
[2]Franciscan Fathers, 65.
[3]Hough, (e), Pl. 26; Lowie, (i), 223; (a), 190; Chamberlin, (a), 33; Barrett, (a), 257; Teit, (a), 297; Hasberlin und Günther, 15.
[4]Franciscan Fathers, 467.
[5]Russell, (d), 134; Sparkman, 219; Dixon, (a), 143; Lowie, (a), 184.
[6]Mason, O. T., (f); Wissler, (a), 159.
[7]Pattie, 164; Goddard, (b), 201; Hough, (e), 287; Letherman, 263; Mason, O. T., (f), 640, 668, Pl. 78, Fig. 3; Dorsey, G. A., (b), 180; Bourke, (b), 57.

[Text continues on p. 160]

2:Illiff Y-5 (ca.1901) 1954 NT14 Plateau Yumans NT14
Havasupai

I tried, but swallowed hulls with the meats, so gave it up.

Kate replenished her supply by pouring dried seed[1] into her basket, scraping in live coals, and tossing them together with a rhythmic motion that kept seed and coals in a lively dance until the former were delicately browned. Changing the motion, she eliminated the coals as dexterously as a miner washes sand and dirt from his panned gold. Kate was ready to mill her second batch. Her ample body overlapping her fat legs called for a health talk on the dangers of overweight, but these carefree villagers had robbed me of the mood to lecture. Even to improve the health and the appearance of her body, I could not wipe that look of supreme enjoyment from Kate's pleasant face.

An older woman, bent over a basket she was weaving, sat on a blanket near the entrance to the house, her face lined with anxiety. In working out her design she was using the black bark of the devil's claw (two-pronged seed pod of the unicorn plant) against the white inner bark of the osier. There was something arresting about the woman's dejected posture and the wild, frightened look in her black eyes.

"Yunosi make new basket," Kate volunteered. She held up the basket she was using to show me its burned and broken condition. "I burn," she explained with a giggle. "Make new. I use."

Yunosi! That name explained the drawn muscles of the woman's face, the look of fright in her eyes. Only the previous week Bob had come to the office asking for medicine for Yunosi. His sister, he called her; but the terms sister, brother and cousin were loosely used to denote almost any blood relationship. From him I had learned her story.

As the wife of Chief Navaho's son, she had held an important position in the tribe. Her husband had been a good mixer; he had liked and befriended white men, and had learned enough English to converse intelligently, and from him Yunosi had learned many English expressions. A deep and lasting love blessed their union, so that after his death, she had more than the usual fear that his spirit would hover near her, unable to leave the one to whom he was so devoted.

[1] [i.e. sunflower seeds — Analyst]

Sulliff Y-8 (ca.1901) 1954 NT14 Plateau Yumans NT14
Havasupai

And the gods spoke—through a storm cloud—deciding the issue with one swift blow. Work was progressing toward completion when a flood roared down the canyon, wiping out the widened, costly trail, demolishing the equipment that had disfigured Mooney Falls, and causing the firm such financial loss that the project was abandoned. The white men rode out, one afternoon, over the hastily repaired trail, leaving the canyon to the people to whom it rightfully belonged.

The power of the gods was manifest once more, renewing courage and inspiring the whole village with fresh vitality. The people worked in homes and gardens, their former cheerfulness restored by this assurance that the gods who had led them to the canyon and taught them the skills by which they had survived, were still able to defend them.

Their faith in their gods was so sincere, and they spoke of them with such candor, that I might easily have learned how much of their culture the Havasupai attributed to this source. To meet their spiritual needs, they had their god-given songs and dances. To care for their sick, the gods had taught them how to make the *tobolwa* and the songs to be used in the healing ceremony. When they needed fire, the gods, through Coyote, had lighted the torch. These things I knew, but there was so much that I had failed to learn. They traced every skill to a time in the dim past when Those of Old were instructed by the deity. Now it was all too evident that some of these skills were falling into disuse.

They had been pottery makers but tin cans and lard pails had taken the place of clay utensils. Happily, baskets were still plentiful in every home. They were strong and somewhat coarse in order to stand up under the rough usage as toasting baskets, burden baskets, water bottles and general containers. However, the watertight cooking basket, used by their ancestors, into which heated stones were dropped to keep the contents boiling, was now a relic of the past. The imperfectness with which these cooked the food and the constant attention they demanded, doomed them to this fate. As the stones had cooled, they were replaced with others fresh

Zolliff Y-5 (ca. 1901) 1964 NT14 Plateau Yumans NT14
Havasupai

from the bed of hot coals. Broken pieces of stone always had to be picked from the food. So these cumbersome vessels were discarded as soon as other containers were available. But the horn spoon, shaped from the horn of mountain sheep, was still in use. Making it was a tedious and lengthy process. The horn was soaked in water, then buried in moist sand until somewhat softened. The next steps —heating, oiling and fashioning the horn into a spoon or ladle— required the skill of long practice. Tin cups, obtained at the trader's store in Seligman, were gradually supplanting the horn spoon, and another skill would soon be forgotten.

In a report on conditions in the canyon for the year 1898, the acreage in cultivation and under fence was estimated at three hundred twenty-five. One thousand bushels of corn and fifty bushels of wheat were grown that year, in addition to an abundance of vegetables and fruits. And the tribe had a cash income of four thousand dollars. At that time, tribal affairs were managed almost wholly by the chief and head men, although the school had been in operation for three years. From the seeds their gods had given them, the Havasupai had reaped their independence.

They preferred their old system of barter and trade to a cash sale. The Navaho were silversmiths and weavers of warm blankets, while the friendly Hopi and Walapai had ponies or goods to trade. A Havasupai could measure out a small tray of beans and—after endless good-natured bargaining—exchange his beans for a fine Navaho blanket. Two spirals of their dried pumpkin or squash had the same value.

Every man of consequence kept a pony in his dooryard and sprang to its back to ride the short distance to a neighbor's wickiup. So horses were eagerly sought. A Hopi pony cost a large well-tanned buckskin or as much shelled corn as a large burden blanket could hold. A man traded, or made gifts, for the girl he wished to marry, presenting her parents with ponies, blankets or grain to the value of about twenty dollars, if the girl was popular. Ten dollars in trade was a fair price for a lazy girl.

The men, of necessity, had developed skills. The tribe needed to

252
415
285
531

Chickapanagie's Wife, a Havasupai, parching Corn in Basket.

252
362
291
516
531

A Wallapai Woman pounding Acorns.

James T-5 (ca.1900) 1903
NT14 Plateau Tribes NT14
Havasupai
Walapai

[Facing p. 210]

3:James T-5 (ca. 1900) 1903
NT14 Plateau Yumans NT14
Havasupai

515 breeding, for they are ubiquitous. Yet, strange to say,
136 I have never known of an instance where a bed-bug has been brought out of the canyon by a visitor. Though I have been with the Havasupais scores of times I never detected one of these vermin either in my clothing or bedding. The breed seems to be peculiar to the warm, moist air of the canyon and to be unable to live away from it, for which we give hearty thanks.

136 Now and again scorpions may be found, and, after a rain, I have seen a score of hundred-legged worms (perfectly harmless) rolled up on the trail between the village and Bridal Veil Falls.

Rattlesnakes are not common anywhere in those portions of the canyon much visited by the Havasupais, but now and then one may be found on the trails or basking in the sun on the rocks near by. Elsewhere in this canyon and its many greater or lesser tributaries they are common, and the Indians can find any quantity if they are sent for them. In all my years of wandering to and fro, though, I have not seen a half-dozen rattlesnakes in Havasu Canyon.

Other pests are mosquitoes, gnats, and a small black fly which, in certain seasons, persistently lodges in the eye, causing considerable annoyance, and sometimes distress and pain. There are not many mosquitoes, though at times they are troublesome enough to satisfy one for their scarcity.

285 Many of the women are expert basket makers, and in
[462] my book on Indian Basketry I have fully explained their methods of work and the charming nature of their designs. The Havasu Canyon is a basket maker's paradise, for the stream is lined for miles with willows
[137] suitable for this work.

3:James T-5 (ca.1900) 1903
NT14 Plateau Yumans NT14
Havasupai

The process of making strands or splints of the willows is a very simple and primitive one. Here as I sit writing (Sept. 14, 1901), Chickapanagie's squaw has a lot of willow shoots before her. Taking hold of one end of the splint in her teeth, she pulls away the cuticle with her fingers. These alone are her tools, and it is astonishing the rapidity and regularity with which the process is accomplished. 285

As soon as a girl can frame her fingers to the work of basket making she is required to begin. It is very interesting to watch the small children in their endeavors to make the rougher baskets, and then, as they grow in skill, try the finer work. Pul-a-gas'-a-a is not more than eight years of age, and yet a basket — kü-ü— she brought to me was one of her own make, and it now occupies a place in my collection. The work is irregular and crude, but shows skill, and if the child has patience to stick to it, in time she will become one of the most accomplished basket makers of the tribe. 285 868

As soon as possible after attaining puberty the Havasupai girls marry, generally between the ages of thirteen and fourteen. The parents themselves urge these early marriages. Whether they fear the loss of virtue in their daughters from evil white men, or the degenerate young men of their own tribe, I do not know, but several parents have told me that the sooner their girls marry, after they are marriageable, the better pleased they are. 582

Marriage is generally arranged by purchase. When a young man sets his affections upon any particular girl, he contrives to show his preference for her, and, as soon as he finds that his attentions are agreeable, he visits his fair one's father or nearest male relative, and 584

4: Smithson E-5 (1951-1958) 1959 NT14 Plateau Yumans NT14
Havasupai

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Fig. 12. Infancy and childhood. A, Twins, Ned and Ted Grounds, eight months old (Ned died two months after this picture was taken). B, Tommy Siyuja, age two years. C, Rena Paya, age six, with doll in toy cradleboard made for small girls.

854 The cradleboard, 70 to 75 cm. in length and about 25 cm. in width, con-
285 sists of an oval foundation across which willow slats are placed to form the
283 backboard. A circular, woven hood about 28 cm. in diameter is fastened at right angles to the backboard so that the baby's head will lie within its protection. Four buckskin or cloth loops are sewed along each side of the backboard, with a long lacing strap attached to the upper left loop. Formerly, a shorter cord, attached to the upper left loop, was laced through the two upper pairs of loops, and a second cord, joined to the third loop on the right hand side, could be loosened separately to facilitate cleaning the baby. A tumpline, formerly attached, is no longer added. When buckskin was in ready supply, it was used for the loops, tumpline, binding straps, and bindings on the backboard and hood. At present, strips of cotton material are used on most of the cradleboards.

854 To prepare a cradle for an infant in earlier times, shredded juniper
[314] bark was used for padding the backboard and for a headrest inside the hood.
[237] A well tanned buckskin blanket was spread over the juniper bark. The nude infant was placed on the buckskin with a disposable diaper of rabbit fur, finely shredded juniper bark, or a mixture of fur and bark beneath his buttocks and thighs and over the pubic area. With the baby's legs straight and his arms at his sides, the buckskin blanket was folded sheath-like over his body, leaving only his face and head exposed. The binding cord was criss-
[177] crossed through the side loops over the buckskin blanket, immobilizing the baby with the exception of his head. At a later time, a Hopi or Navaho blanket was substituted for the buckskin; more recently, this was replaced by commercial receiving or crib blankets. Today, infants are dressed in baby clothes of design popular in the white culture.

852 There is little ceremony other than the symbolic face and body molding at the birth of a child. Procedure in the care of the infant is essentially the same for both sexes.

Infant Care

844 While his mother rests for four days and nights on a bed of damp sand
854 smoothed over heated rocks, the infant lies supine on the cradle within reach of her hand. A baby is cared for by his maternal grandmother or by his mother if she feels well enough. Men are not barred from the presence of the mother or the infant during or following the birth. The baby's father customarily assists at the birth, and if he is present, he builds a fire and reheats the rocks for the mother's bed each night and morning.

846 Following the birth and on three subsequent mornings, the baby and both
854 of his parents are ceremonially bathed in yucca suds, the baby being bathed by his maternal grandmother first, while his parents and paternal grandmother look on. Thus, the father, mother, and newborn child share in a ritual act which identifies them as a family. The father and other male relatives devote some attention to the baby, usually displaying a particular

291 ship period.
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[114] Spier (1928,183-97) describes clothing and personal decorations for both sexes in more detail than present informants are able to give, but some supplementary data can be added to Spier's.

291 In aboriginal days, both young girls and mature women wore a buck-
[301] skin dress of a style copied in the puberty dress already described. For daily wear, a dress apparently was uncolored. Its usual decoration consisted of buckskin fringes, hoof or bone rattles, or metal jinglers.

Feminine apparel also included hard-soled moccasins with a long upper piece wound around the leg (Spier 1928, 191), a short apron worn in front under the skirt, a wide buckskin apron or belt decorated with rattles, and a woven Hopi belt (Spier 1928, 188-9). A woman originally draped a rabbit-skin blanket around her shoulders. Spier (1928, 129) reports that the blanket was replaced by a shawl, made from four bandannas, which was knotted under the chin and hung to the heels in back.

[237] Two hat styles, a woven basket type and a skin hat cut from the thigh
[285] of a mountain sheep, deer, or antelope, were reportedly worn infrequently by men in aboriginal times. Informants who described the men's hats in some detail knew of no corresponding hat ever worn by women. Another
[415] informant denied that basketry hats were ever worn by either sex, stating that baskets of this shape were in daily use as food bowls, both as containers and as receptacles for food to be eaten. For protection from the sun, women stripped the long leaves from a yucca, tore them in half, and wrapped two a three of them around the head and knotted them on the forehead.

Present informants describe a later style of buckskin dress worn for dances until perhaps about 1940. It was fashioned from two large buckskins
[177] with sides sewn together, the buckskin sometimes being stained red with powdered ocher. A woven Hopi belt of colorful design was knotted at one side, with its ends hanging free. Metal jinglers sometimes were added to the belt ends and to the skirt edge. Necklaces and bracelets of silver,
[301] turquoise, or shell were worn with these dresses, and women painted their
[302] faces variously with red, white, or black designs. The rock for red and white paint was of local origin, but the black came from some distance and was rarely in supply.

Buckskin clothing in aboriginal times was made exclusively by men for both sexes. Dance dresses of the above style reportedly were made by
[768] Chief Watahomigie for his granddaughters, Harriet and Edna Yumiska, and by Dean Sinyella for his daughter, Irene, but these dresses were destroyed upon the death of their makers. While beading was learned at boarding
[177] school by a few women now near middle age, and two or three older women had acquired the skill elsewhere, it was seldom if ever used by the Havasupai.

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Fig. 15. Maturity. A, Lillian Paya, age 27 with son, Bernard, age two. B, Jack Jones, age 34. C, Viola Crook, age 41, with daughter, Betty Ann, age one. D, Ethel Jack, age 44. Viola and Ethel are sisters.

Among those tasks commonly allotted to women, child care and cooking were the two which occupied most of her waking hours. While child care was primarily a feminine responsibility, men shared or assisted in it when they were at home, as previously described. Cooking, on the other hand, usually was not a regular occupation of a man even on a part-time basis, except for those men who lived alone or had no woman in the household. However, if an old couple lived alone and the man were the more robust of the two, he did the cooking or assisted with it. Whenever the wife was absent or indisposed for a brief interval, it was not beneath her husband's dignity to cook, although he might choose to eat with a relative if his dependents were not too numerous. 462

Women gathered wild plant foods within a short radius of camp, but trips of longer duration or greater distance were usually undertaken in company with their husbands who shared in the work. Gathering the pinyon harvest was a family project in which everyone worked and groups of families camped close together, making it a gala outing lasting two or three weeks. Each family moved from place to place until they judged their harvest adequate for their needs. [222] [476]

After the harvest of pinyons and other wild plants in which men helped, it was women's work to roast, husk, grind, and otherwise prepare the food for immediate use or storage. Likewise, women prepared for storage all foods harvested from the fields. Spier (personal communication, 1957) adds that men might also prepare food for storage, especially if they had no women to do it. [251]

Pottery was made by women, but its use was abandoned so long ago that the oldest living tribal members probably saw its manufacture only in early childhood if at all, and only a scant description could be obtained from informants. Location of clay deposits is still common knowledge, however, and one man pulled a sample of powder-smooth texture and almost white color from under the eaves of his house where it had been used for chinking. Clay deposits still exist in Cataract Canyon, notably near Navaho Falls and near the mouth of Ash Canyon, a tributary. Other clay deposits used are located on the plateau near Pine Spring and elsewhere. Clay was excavated either by women or men. [323] [317]

Basket weaving was exclusively woman's province, but basketry materials were sometimes gathered by men. [285]

The Havasupai did no beadwork or embroidery in early days. Twenty or 30 years ago several girls learned to do beadwork while in school at Fort Mohave, but few if any of them have used the technique in recent years. [306] [871]

Construction of houses and brush shelters used in summer is a family affair, and occasionally most of the community will join in building a house [342] [476]

Ownership privileges of white women set an example which Havasupai women appear to envy. In addition, modifications in Havasupai political and social structure with consequent economic adaptations point away from any increased emphasis upon patrilineal inheritance, and therefore, toward increased emphasis upon property ownership and land inheritance rights for women. 423 428 562 578 177

Arts and Crafts

Basket weaving is almost the sole outlet for creative artistic talent among the women. Interest in it has so fallen off that, in 1950, only half a dozen women were actively occupied in making baskets despite the fact that their supply never equals tourist demand. It was said that the work of a few other women who had tried basket weaving at one time or another was too inferior in quality for sale. Most of the older women are able to make twined baskets for their own use, but they seldom do. Apparently no one has twined a burden basket for some years, and only three examples of this type were observed about the village. The only other basket type seen in use was a broad, shallow tray convenient for winnowing seeds, parching corn, pinyon nuts, or seeds, and for drying peaches, figs, or other fruit. 285 463

Spier (1928, 126-7) identifies two coiled baskets, one a flattened globular form used for stone boiling and the other a tray used for winnowing or parching. An informant at the present time reports that a shallow bowl from which a family took its meals was also made by coiling. Presumably, all other basketry forms were produced by the twining technique. 285

Today the few utilitarian baskets woven are twined, while those made for sale to tourists are nearly all coiled.

Although women traditionally traded baskets to the Hopi, Navaho, and Paiute, demand lessened as metal containers became available. Basket weaving for home use declined, although the Havasupai continued to make certain types, including burden baskets and trays, which were not duplicated in metal form. [439] [177]

The advent of tourists to Grand Canyon National Park for a time stimulated interest in basket manufacture, but emphasis gradually changed from utility baskets in twined stitch to coiled ornamental basketry in a variety of new shapes and sizes. Coiling was the weave preferred by tourists.

Formerly, emphasis was upon utility rather than upon artistic effect or originality of decoration. Baskets were sturdy and durable. Weavers in general kept to basic styles, although the variety of shape in water bottles suggests some inventiveness beyond requirements of utility. Spier (1928, 124) reports four striking different shapes of water bottles, although three are variants of a single fundamental form.

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Fig. 17. Women weaving baskets. A. Coiling technique; a hole is punched with an awl. B. Weft element threaded around three-rod foundation in coiling technique. C. Beginning a basket to be woven in twining technique. D. Carrying position for burden basket may be with tumpline around bearer's head, as shown, or with tumpline across chest and shoulders. Women pictured are, in sequence, Edith Putesoy, Lina Iditicava, Mamie Chick (last two photographs).

Decoration was kept to a minimum, almost always consisting of one, two, or three lines with solid triangles aligned against them, or rows of short parallel lines angling with the direction of weave. On one burden basket in use in 1950, ornamentation consisted of an encircling black line omitted on that portion of the basket which would lie against the bearer's back, Spier (1928, 127) notes that this was common practice. In coiled basketry for the tourist trade, more interest is taken in producing a pleasing decoration, but no distinctively Havasupai style has emerged. Three weavers are especially skillful in ornamentation, all of which is woven into the body of the basket with black strips from the seed pod of the devil's claw, the strips being sized to match the willows used in the remainder of the weaving. Designs usually are composed of small masses or lines of solid black. Animal or bird forms are occasionally represented, but geometric designs are more common. Ideas for designs are often original with the weaver rather than traditional in the tribe. One weaver imitated a four-leaf clover, creating a well balanced and pleasing effect. Another produced a spotty, poorly conceived design by scattering too many small images of birds and animals on the face of a tray. A young woman who decided to learn the weaving art consulted a book on Papago basket weaving to borrow designs. 285 531

Spier (1928, 155) notes, "The decorations on coiled baskets and twined burden baskets and trays of the Paviotso, Moapa, Yavapai, and Walapai bear definite resemblances to those of the Havasupai." [171]

Spier (1928, 128-38) gives a detailed description of techniques used in twining and coiling. Both processes also were observed and photographed by this investigator. Techniques used remain as Spier described them; and only additional observations will be recorded here. [114]

For twined baskets, twigs for the warp, or ribs, are prepared by merely stripping the leaves and leaving the bark. For weft, twigs are split into three strips starting at the small end by manipulating with the teeth and both hands. The pithy section of each weft strip is scraped off by drawing it at a right angle across the blade of a knife held parallel to the extended index finger. The bark is left on, and if a completed basket is examined closely, it may be seen that, in drying, the bark separates from the woody part of the strip giving the finished basket the effect of being woven with double weft strips. Weft strips are woven with the woody surface of each strip turned to the interior of trays and to the exterior of burden baskets so that the side most often seen on the finished product is the light golden color of the wood while the reverse side is the darker brown or tan of the bark. The weaver works with the woody surface of the weft strips or the "right" side of the basket toward her; hence, she weaves a tray holding the interior surface toward her but turns a burden basket upside down with its exterior surface toward her. 285

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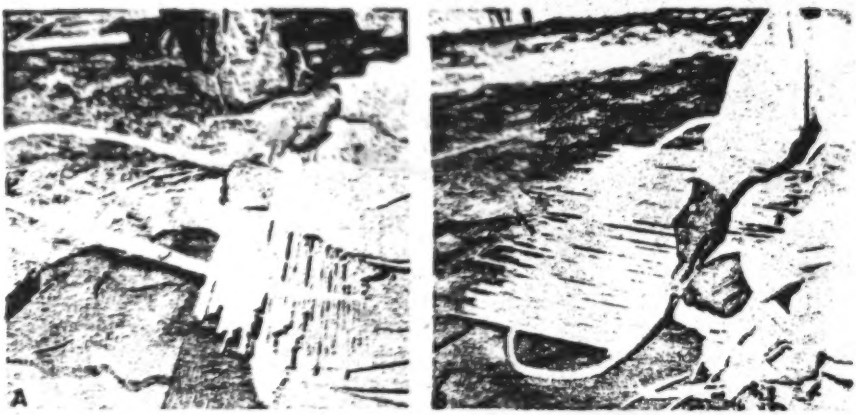

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Fig. 18. Manufacture of a cradleboard. A, Binding willow slats to oval frame. B, Trimming ends of willow to fit frame. C, Sewing buckskin strip over cloth binding which was first glued with pinyon pitch and sewed along sides of frame to cover rough ends of willow slats. D, Lina Iditicawe displaying completed cradleboard with wicker hood. Formerly, buckskin was used in place of the cloth strip; the former is still added occasionally as an extra feature if it is obtainable.

Materials used for coiled basketry are more carefully prepared than those for twined baskets. Both warp and weft twigs are denuded of bark. The weft twigs are split into three strips in the same manner as for twined baskets, and the pith is carefully scraped off and both sides of each strip scraped smooth. In addition, each weft strip is sized by drawing it through a hole punched in the lid of a coffee can or something similar. One weaver used a gradation of five or six holes for sizing strips for miniature baskets 2 to 3 in. in diameter up to trays 1 ft. or more across. 285

Whiting (1952, 64) identifies the materials used in basketweaving as follows: For woven elements squawberry is preferred; cat's claw is strong, and cottonwood is considered inferior. For rims, service berry, Apache plume, and mesquite are favored. For decoration, squawberry and devil's claw are used. Spier (1928, 128) cites Acacia greggii (cat's claw) as the best material for twined baskets and notes (p. 133) that cottonwood is used for coiled baskets. Materials observed most frequently in use in 1950 were those noted by Spier. [824]

Women also wove sleeping mats, but they are no longer used. Cradleboards, also made by women, continue in general use.

The Food Complex

Cooking and storage methods, together with degree of utilization of the available food supply, furnish an excellent index to feminine ingenuity and readiness to accept new ideas. Cooking methods and exploitation of the environment for foods, and probably food storage also, are traits extant in every culture. 153 252

Food Sources

The Havasupai food supply under primitive conditions was sometimes meager but included much variety. Cultivated foods included corn, beans, squash, peaches, and sunflowers, and a wide variety of wild food plants were harvested for seeds, leaves, or roots. Foods were prepared singly or combined in numerous ways. Cooking was by stone boiling, parching, baking, and broiling, and oftentimes two of these methods were used in preparing a single dish, for example, parching and boiling. 241 [252]

Whiting lists aboriginal cultivated food plants as corn, squash, tepary beans, lima beans, kidney beans, and Hopi sunflowers. Foods introduced include the peach, fig, apricot, plum, pear, apple, watermelon, walnut, and blackeyed pea. Other foods introduced but rejected or little used include the onion, chili, sweet potato, tomato, peas, almond, cherry, and wheat (1952, 60). 241 824 177

343 plaster. Marks were made on each seal so that the owner could
[423] readily identify it. These high storage chambers always kept the Indians' food supply safe from the floods that rushed down the canyon at times. The summer climate in Cataract Canyon is very hot. The rock
[132] walls absorb the heat of the sun during the day and only a part of this stored heat is radiated during the night.

252 Most of the tribe live much of the time out-of-doors. The cooking is done over an open fire and the other household work is performed un-
132 der trees and brush shelters. In winter the sun lingers only six or
361 seven hours between the cliffs, imparting but little heat, and the nights and mornings are very cold. Because of this and lack of fuel, most of the tribe leave the canyon during the winter months and live on the plateau around the head of Topocobya Trail on the east. Here there is plenty of pine wood for fuel and good grazing for the horses. On the
[343] plateau, the house is a sort of *hogan* of logs and earth, more solid in construction than in the canyon.

264 In the summer most of the cooking is done out-of-doors and the
[352] meals are served there also. The cooking pots and pans, baskets of fruit, trays of bread, water bottles, and coffee pot are placed together on the ground. A large vessel containing ground rock salt always
[263] stands nearby, but very little is used, and practically none at all in the process of preparing food. The family groups itself about these, sitting on the ground or on boxes within easy reach of the main dish of the meal. Sometimes plates and spoons are used, but usually pieces of meat and vegetables are fished from the stews with the fingers, twigs, or knives, while mush is scooped up with chunks of bread. Generally the women and children eat with the men, but when they are visiting male relatives or friends they usually wait until the men are through.

252 Cooking utensils are of the simplest kind—cheap tin kettles, lard
415 cans, and tin buckets. Some characteristic Indian utensils are still in
[285] use. A shallow basket woven of willow splints, lined with a coating which may be red clay, stewed peaches or other sticky substance, is used for roasting piñon nuts and corn. Hot coals are put in the baskets and shaken around until the nuts or corn are roasted.

[227] The conical shoulder-hung basket is still in use for gathering vege-
252 tables and fruit. The *metate* stone for grinding wheat, corn, acorns,
412 and piñon nuts is extensively used. The *metate* is a flat slab of hard stone (the *mano)* held in the hands. When not in use the *metate* is turned upside down with one edge resting on the *mano* to keep it off the ground. A brush made of mescal leaf fibre is used for cleaning the *metate*. Stone mortars, and pestles, are used for pounding dried meat, piñon nuts and corn, also.

177 The Havasupai have adopted the white man's mode of dress. The
291 men wear overalls or corduroy trousers, blue cotton shirts, jumpers
302 large cowboy hats, and boots or shoes. Their hair is cut short. The women wear long, wide-skirted dresses, which they make themselves, of calico and print in the brightest colors obtainable. Ten yards is the usual amount of material required to make a dress. The hair hangs down in long bangs over the forehead so it almost obscures the eyes. It is cut shoulder length in back. Their hair dressing is about the only thing distinctly Indian unless it is the brightly-colored handkerchief tied loosely about the shoulders. Shoes are of American manufacture, a high top, low heel lace shoe for the older women and oxfords for the girls and young women. Moccasins are sometimes worn by the older men and women. During the warm weather the women and children go barefoot around camp.

291 Formerly both men and women wore moccasins. The man's moccasin consisted of two pieces. The sole was made of the thickest part

THE HAVASUPAI

of the neck skin of the deer. The upper was a single piece of soft dressed skin, lapping at the outside of the foot, where it was fastened with a silver Navaho button. The woman's moccasin was a two-piece upper, a toe piece and a tongue in one, and long ankle flap which was worn around the ankle. The single tie string was wound over this and its loose end tucked under a fold. 291

Jewelry worn by the Havasupai is obtained in trade from the Navaho and Hopi or from the trader's stores at Grand Canyon. 301 439

Although the Havasupai relies mainly on his agricultural products, meat is a part of the diet the year round and especially during the winter. During the winter months rabbit drives are conducted by the men and boys. They drive in a straight course instead of drawing in a circle as several other tribes do. They claim their numbers are too few for a "surround". The rabbits are shot; never clubbed. Deer, antelope, mountain sheep, squirrels, and raccoons are also hunted. The hunt is still of economic importance as a supplementary source of food. Guns now are used in hunting instead of the traditional bow and arrow of former times. 242 284 [462] [177]

A man's work consists of house building or at least performing the heavy labor such as cutting and setting posts and beams, tending his fields, dressing hides, and looking after his range cattle and horses. 462

HANDICRAFTS

The Havasupai make basketry in two techniques, twining and coiling. Baskets are the most important domestic utensils and in each household may be found several burden baskets, food trays, and one or two water bottles. When not occupied with her other duties, the Havasupai woman is generally engaged in her craft. 285 415 [482] 462

The best material for making twined baskets is the acacia, generally gathered green. If gathered dry, or dried and stored, the twigs are either soaked in water or buried in wet soil two or three days before using. Cottonwood and willow are used. [824]

The leaves are stripped from the twigs by drawing them through the hand protected by a piece of cloth. The twigs are split in three parts, beginning at the tip, by using the teeth and both hands. Only the two outside strips are used, the inside being discarded. A knife is used to scrape the strips to uniform thickness. To begin weaving, two pairs of twigs are held so they cross at right angles at their midpoints. A weft strip is bound two or three times across the junction and the ends are woven alternately over and under the ribs. The weaving is in clock-wise direction, with the right side (the inside of parching trays and the outside of most other baskets) of the basket toward the weaver. After twining twice around the four ribs, another rib is inserted and caught into the twin stitch. The end of the twig is softened in water so that it can be drawn in tightly by the weft. The butt of the twig protrudes on the under side of the basket beyond the stitch by which it is held. As the weaving progresses new warps are inserted, always regularly spaced. As a rule baskets begin with diagonal twining, the weft crossing two warps at a time. Some begin with simple twining, the weft crossing single ribs, but soon change to diagonal weave. Diagonal twining is much more rapid. In either case the warps are inserted one at a time, but weft elements are twined in pairs, new strips are added singly.

To finish the edge of trays, burden baskets, or water bottles, the warp ends that protrude beyond the woven fabric are split and thinned, then bent to lie along the rim, and bound together with a stitch.

The burden baskets and water bottles are decorated with simple designs made by introducing different varieties of twining and with black from the Martynia or devil's claw. They have loops for carrying. The 285 415 531 [482]

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415 water bottles are first coated with soap-weed paste colored red, and
531 then with piñon gum to make them water tight.

The real artistry of Havasupai basketry is seen in the coiled trays and bowls, made of twigs of cottonwood or the three-leaved sumac. In shape they vary from round or oval plaques, nearly flat but with slightly upturned margins, to baskets or bowls of cylindrical proportions. The material is prepared at leisure and made into bundles and stored. The bark is scraped from the twigs, the wood split and scraped to uniform width. When desired for use, the materials are soaked in water to make them flexible. The sewing is on a three rod foundation. The ends of three twigs are tied in a knot. One end of the sewing element is pulled under one rod near the knot. The rods are started in a spiral and the binder stitched around them into the middle of the knot. The stitches following those of the first coil are sewed into the knot also. The coils are so arranged that two rods lie along the completed coil with the third on top and between them. The stitch in the succeeding coils is meant to pass under the third rod, but in most cases it pierces this rod which the awl splits. Stitches are evenly spaced to pass between those of the previous coil, not to pierce them. After two coils are in place the end of the rods that protrude at the center are clipped off. Sewing is always from right to left; the free ends of the rods are held in place with the left hand while the right plies the awl. The sewing element is brought over the rod toward the worker and through the coil away from her.

There are two or three methods of finishing the rim of coiled baskets. Usually they are finished by cutting off three rods successively so that the coils will taper to an end. Some baskets are finished with a diagonal over and over stitch with two strands.

531 Simple geometrical figures, animals, and banded designs are made in the black outer side using the outer layer of the seed pod of devil's claw. Most baskets are of white background with black decorations, however, the reverse is sometimes found with baskets of black devil's claw background and white designs.

854 The Havasupai cradle board is an oval frame across which small twigs are laid except at the rounded ends. The frame is made of green branches which are bent, tied and buried in damp soil to set in shape.
[207] The sticks that are laid across the frame are bound to it by a long strip of buckskin which passes once diagonally over the end of each cross stick. A piece of canvas or buckskin is laid along each side of the frame to cover the wrapping and is held in place by tie loops of buckskin, which are always four in number. Some cradles have carrying straps or a woven Hopi or Navaho belt may be used for the carrying strap, fastened to the frame about one-third of the distance from the top. A hoop of wicker is tied to the frame in the open space at the top and to the upper cross sticks. Two stay straps extend from the center of the upper end of the frame to two points on the hoop. A blanket is usually spread over the hoop to protect the baby's face from the sun and wind and to save him from injury should the cradle board fall.

SOCIAL ORGANIZATIONS AND CUSTOMS

594 The Havasupai family in our sense is the social unit. There is no
614 *clan* or *gentes* system, nor are there any indications that they ever ex-
602 isted. Individuals recognize their affiliations with their immediate relatives only; there are no other particular social or ceremonial groups.

The family groups are loosely bound into large ones by blood ties.
593 A group of sons reside in houses adjacent to the parent's home, together with the newly established families of the daughters of the house. The father and sons work their undivided fields with the assist-

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Though many Havasupai women use modern metal corn grinders, some still prefer the metate and mano.

Lina Iditicava is one of the oldest as well as one of the best Havasupai basket-makers.

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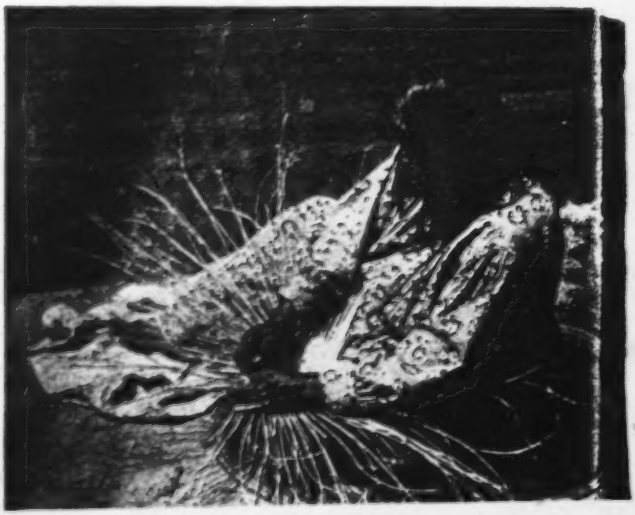

such items as Lucky Strikes, Carnation Milk and Tide washing soap are preferred. The new package cake mixes have been as much a boon to the women of Supai as they have to the women of Cincinnati. 177 443 655

In addition to running the store, the Tribal Council also appoints one of the tribal members to function as a "tourist manager." The Havasupais are well aware that their most valuable resource is the unmatched beauty of their canyon home and much effort has been put forth to develop a lively tourist trade. The tribe as a whole never seems to be able to get excited about the idea at the same time, however, and progress is slow. Tourist cabins have been under construction for the past three years and may perhaps be finished next year. 177 485 655

Since World War I and even before, each year has seen a number of white visitors come into the canyon. Until about the last decade, most of these outsiders were photographers, writers, prospectors, geologists, National Park officials and even a few anthropologists. They either camped near the falls below the village or stayed in one of the government buildings. 177 648

In more recent years, a few tourists include a trip to Supai in their visit to Grand Canyon. There is a travel agent in Los Angeles who has made it part of a packaged tour and Hiking Clubs and Boy Scout Troops visit it in droves.

Although visitors are free to walk in if they please, they are encouraged to use saddle and pack horses, for they must be rented from the tribe at reasonable but sizable fees. The women have put new energy into their basket-making and though theirs are not the finest to be found in the southwest, they are attractive enough to induce more than one tourist to buy. 443 177 [285]

With Supai receiving more attention in travel and vacation magazines and with the tourist cabins nearing completion, it is possible that the Havasupais' hope for more and more "paying guests" may be realized. When one visualizes this lovely spot as littered with beer bottles and gum wrappers, however, it is difficult to know whether to wish them good luck on their venture or not. 177 648

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maps the San Francisco mountain is represented as belonging to the continuous Mogollon chain, which comes from the east southeast, and was called Sierra de los Cosninos, the name of a tribe of Indians inhabiting this region. I am under the impression that Leroux, the early explorer in that part of the country was finally murdered by the Cosninos, but I do not remember that the account has ever been printed." Whipple also refers to the "Cosnino caves," remarking that "the Cosnino caves had been plastered with mortar, showing more artistic skill than is practiced by the present occupants of the country" (*loc. cit.*, p. 15). And again on page 19 he goes to show that, taken collectively, the Pontos, Cosninos, and Yampais together number 6,000 souls; of these 2,000 were Yampais (p. 17). But all this is very brief and unsatisfactory. 175 114

Capt. John G. Bourke, in his work on "The Snake-dance of the Moquis of Arizona" (1884), says, "At Keam's ranch we met Mr. Alexander Steven, a bright Scotchman who during the past 12 years has had considerable experience as a metallurgist and mining prospector in Nevada and Utah. He gave me a thrilling account of his journey westward to the country of the Cohoninos, a tribe of Indians living in the cañon of Cataract Creek, near its junction with the Grand Cañon of the Colorado in this Territory.

"They number only from forty to fifty warriors, live in the cliffs in winter, and build 'wickyups' or sapling lodges in summer. They say that the Hualpais (Wolapais), Apache-Mojaves, and themselves are all one people—Cohoninos—but that *their* proper designation is the "Ah-Supai. 175 101 [342]

"They raise an abundance of finest peaches, good corn and melons, and weave unusually fine and beautiful baskets. They are great hunters, and eke out a living by trading off buckskins, and sometimes mountain lion pelts, to the Moquis, Navajos, and Apaches. 175 [241] [285] [439]

"The cañon in which they dwell is 4,500 feet deep, and is that of the Cataract Creek, a strong body of clear water tumbling by a series of cascades into the Grand Cañon of the Colorado, 1,500 feet still deeper, and separated from their village by a series of blood-curdling precipices and chasms" (pp. 80, 81). Captain Bourke, in speaking of the Moquis, says further, that "Intimate commercial relations are maintained with the Cohoninos or Ava-Supais on the west (*loc. cit.*, p. 254). [33] [439]

In a lecture before the National Academy of Sciences, delivered in Washington, April 22, 1882, Mr. Frank H. Cushing in referring to the Zunians said, "Interesting among the hero-gods is the great priest of all religious orders save that of the bow, *Poskai Anki'a*. In the days of the new, yet not until after men had begun their journey toward the east, he is supposed to have appeared among the ancestors of the Zuñis, the Taos, the Coconinos, and the Moqui Indians, so poor and ill-clad as to have been ridiculed by mankind." This lecture was afterwards published in The Popular Science Monthly, of New York (1882, p. 191). 114 993

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AN HAVESU-PAI LODGE IN SU-PAI CAÑON, ARIZONA.

194 The grammatic structure of their language, though inferior to that of the Zuñis, is nevertheless quite regular. Intonation, as with the Chinese, repetition, as with the natives of Australia, are employed to vary the shades of meaning in words. Most of the consonants not occurring in other Indian tongues are common in the Ha-va-su-paí, which is strikingly soft and rapid. Just as the music of the Zuñis has caught the spirit of the desert winds, so have both the music and the language of the Ha-va-su-paí been infused with the sounds of the rushing waters by which they are surrounded. As I listened to the weird song of a doctor, one night, it seemed more like the echoes of water in a cavern, or in resounding nooks of the deep cañon, than like the music of a human being.

It is, indeed, an interesting question how far man's environments, climatic, physical, even biologic, have influenced the sound of his music and language. Possibly of the same family of Indians as the Zuñis, there are, nevertheless, elements of sound in the music and words of the Ha-va-su-paí unpronounceable by the Zuñi, never heard in his music. On the other hand, the music of the Hua-la-pai, on the plains to the westward, the undoubted fathers of the Ha-va-su-paí, is as strangely different from that of the latter as is the Zuñi itself, and as strangely in keeping with the wild, dry, forest-clad hills and valleys of his native land.

531 Possessing nothing but a rude architecture, their art is correspondingly crude, being mostly confined to the patterns on their basket-work and the paintings on their bows and arrows. [285] The basket-work, by virtue of the regular arrangement of the splints, is often beautiful. But few people live, however, whose appreciation of art seems so great, compared with their limited practice of it.

535 They are mimics, but their dances —

[P. 556 B]

/100 cont./ LIKE THE FIGS, THEIR
177 peaches and apricots were derived from the whites, but so long
245 ago that they are now regarded as native.

291 The aboriginal dress of the Havasupai was simple and rather distinctive. The one arbitrary garment for the men was, of course, the breech-cloth, all additions to which were an
[554] evidence of wealth and position. For the Havasupai shirt the foundation was a large deerskin with a hole cut in the middle, like a poncho. This was loosely fastened together at the sides and held close to the body with a belt. Stitched to it were loose, baggy sleeves, open under the arms as far as the elbows. Shoulder, sleeve, and side seams were freely decorated with deerskin fringe. The leggings, close fitting and fringed at the sides, reached to the hips and were met below with high-topped moccasins. A full suit required five good-sized deerskins. The
[302] men tied their long hair in a knot at the back of the head and cut the fore part in a low bang over the eyes. The principal garment of the women, which reached a little below the knees, consisted of two deerskins sewn together at the top and sides and with openings left for head and arms. It was liberally ornamented with fringe, worn sleeveless, and belted at the waist. Their boot-legged moccasins reached to the knees. The hair, cut in a
[302] bang over the eyes, hung loose and unkempt.

● 285 The arts of the Havasupai are seen at their best in the
[439] basketry. Many of their tray-shaped baskets are used for barter with neighboring tribes, who know them as "Coconino." The
[415] same form, coated with earth, is used as a cooking utensil,
[251] water being boiled in them by the use of heated stones; the water bottle also is of basket-work, coated with piñon gum. A
482 coarsely woven, cone-shaped burden /101/ basket is carried on the back, supported by a strap passing across the forehead.
321 Spoons and small utensils were formerly made from mountain-
415 sheep horn.

622 Chieftainship is hereditary, the voice of the tribe determining which of the male relatives of the last incumbent is best fitted to rule. The present chief is Wimái, who succeeded Kóhat, familiarly known as "Navaho." Kóhat was considered by all who knew him to be a man of unusual strength of character, broad